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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/815,844 | 04/02/2004 | Christophe Le Troadec | 250962US3X | 9690 |
| 22850 7590 03/06/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER ESHETE, ZELALEM | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3748 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | NOTIFICATION DATE | DELIVERY MODE | |
| 3 MONTHS | | 03/06/2007 | ELECTRONIC | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/06/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/815,844

Applicant(s)

LE TROADEC ET AL.

Examiner

Zelalem Eshete

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office action is in response to the request for consideration filed 12/13/2006.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9,12,14-17,20,21 rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (4,660,269).

Regarding claim 1: Suzuki discloses a camshaft for an engine (see figure 1), said camshaft comprising a support shaft carrying in a region of one end thereof of a camshaft element for co-rotation therewith (see figure 4), said support shaft is configured to capture the camshaft element thereof by a head of a rivet formed of a plastically deformed portion at said end of said support shaft that extends radially outward beyond a sidewall defining an opening in the camshaft element through which said end of said support shaft is configured to be disposed (see figure 1, numerals 4,5).

Regarding claim 14: Suzuki disclose a method of producing a camshaft for an engine, the method including: a) providing a support shaft having an end portion

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adapted to support a camshaft element (see figure 4); b) providing on said end portion a camshaft element for co-rotation with said support shaft (see numerals 4,5); and c) capturing said camshaft element onto said support shaft by plastically deforming a deformation zone of said end portion into a radially extending rivet head that extends radially outward beyond a sidewall defining an opening in the camshaft element through which said end of said support shaft is configured to be disposed (see figure 1).

Regarding claim 15: Suzuki discloses a method of producing a camshaft for an engine, the method including: a) providing a support shaft having an end portion adapted to support a camshaft element (see figure 4); b) providing on said end portion a camshaft element for co-rotation with said support shaft (see numerals 4,5); and c) capturing said camshaft element onto said support shaft by plastically deforming a deformation zone of said end portion into a radially extending rivet head that extends radially outward beyond a sidewall defining an opening in the camshaft element through which said end of said support shaft is configured to be disposed (see figure 1).

Regarding claim 20: Suzuki discloses an engine including a camshaft, said camshaft comprising a support shaft carrying in a region of one end thereof a camshaft element for co-rotation therewith (see figure 4), said support shaft is configured to capture the camshaft element thereon by a head of a rivet formed of a plastically deformed portion at said end of said support shaft that extends radially outward beyond

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a side wall defining an opening in the camshaft element through which said end of said support shaft is configured to be disposed (see figure 1, numerals 4,5).

Regarding claims 2,16: Suzuki discloses providing a hollow portion defined in said camshaft; said support shaft includes a hollow portion extending inwardly from said end (see figure 1).

Regarding claim 3,17: Suzuki discloses said support shaft comprises a tube or using a tube for said support shaft (see figure 1).

Regarding claims 4-7: Suzuki discloses the claimed invention as recited above; as to the manufacturing processes, a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983).

Regarding claim 8: Suzuki discloses said rivet head is formed from a deformation zone of said support shaft, which deformation zone overhangs said camshaft element when said camshaft element is in place (see figure 1).

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Regarding claim 9: Suzuki discloses said deformation zone includes, at least before deformation, a hollow rim at said end (see figures 1,4).

Regarding claim 12: Suzuki discloses said camshaft element comprises a drive member configured to transfer rotational drive to or from said camshaft (see figure 3).

Regarding claim 21: Suzuki discloses the head of the rivet contacts a portion of the camshaft element other than a sidewall defining an opening in the camshaft element through which the end of the shaft is disposed (see figure 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10,11,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fujii (5,987,973).

Regarding claim 10,13: Suzuki discloses the claimed invention as recited above; however, fails to disclose a rotation sensor target member and is the camshaft element is formed from a sheet or plate material.

However, Fujii teaches a rotation sensor target member and is the camshaft element is formed from a sheet or plate material (see figure 6). Fujii teaches such arrangement for a camshaft angle sensor realization (see numeral 32e).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Suzuki by providing sensor member as taught by Fujii in order to realize camshaft angle sensor realization for the control strategy as taught by Fujii.

Regarding claim 11: Fujii discloses said camshaft element comprises a substantially planar target member (see figure 6).

5. Claim 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Cooper (4,512,441).

Suzuki discloses the claimed invention as recited above; however fails to disclose using radial cold flow forming technique or an orbital or daisy riveting technique.

However Cooper teaches using radial cold flow forming technique or an orbital or daisy riveting technique and using such technique has the advantage of avoiding cracking (see column 10, lines 46 to 60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Suzuki as modified above by using the techniques as taught by Cooper in order to avoid cracking as taught by Cooper.

Response to Arguments

1. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete
Examiner
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A handwritten signature in black ink, appearing to read 'Zelalem Eshete', written in a cursive style.